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18 **UNITED STATES DISTRICT COURT**
19 **CENTRAL DISTRICT OF CALIFORNIA**

20 TS-OPTICS CORPORATION,
21
22 Plaintiff,

23 v.

24 MICROSOFT CORPORATION,
25
26 Defendant.

Case No. 8:24-cv-01974-DOC-DFM

**PLAINTIFF'S OPENING CLAIM
CONSTRUCTION BRIEF**

To be heard by Special Master via
Zoom

Hearing Date: October 9, 2025

Hearing Time: 10:00 a.m. Pacific

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	BRIEF BACKGROUND OF ASSERTED PATENTS	2
	A. '055 Patent	2
	B. '709 Patent	3
III.	AGREED TERM – “FACING EACH OTHER” ('055 PATENT)	3
IV.	DISPUTED TERMS	4
	A. Level Of Ordinary Skill In The Art	4
	B. Unipolar Magnets ('055 Patent): Plain And Ordinary Meaning, Which Is “Magnets That Each Have A Face With A Single Pole”	4
	C. Server And Client Terms ('709 Patent): Plain And Ordinary Meaning; Not Indefinite	7
	D. Unit Terms ('709 Patent): Plain And Ordinary Meaning; Not Indefinite	13
	E. Filter And Interface Terms ('709 Patent): Plain And Ordinary Meaning; Not Indefinite	21
V.	CONCLUSION	25

RUSS, AUGUST & KABAT

TABLE OF AUTHORITIES

Cases

<i>AllVoice Computing PLC v. Nuance Commc 'ns, Inc.,</i>	
504 F.3d 1236 (Fed. Cir. 2007)	17
<i>Apex Inc. v. Raritan Computer, Inc.,</i>	
325 F.3d 1364 (Fed. Cir. 2003)	19
<i>Apple Inc. v. Motorola, Inc.,</i>	
757 F.3d 1286 (Fed. Cir. 2014)	12, 18
<i>Dyfan, LLC v. Target Corp.,</i>	
28 F.4th 1360 (Fed. Cir. 2022)	19
<i>Ergo Licensing, LLC v. CareFusion 303, Inc.,</i>	
673 F.3d 1361 (Fed. Cir. 2012)	17
<i>Free Stream Media Corp. v. Alphonso Inc.,</i>	
No. 2:15-CV-1725-RWS, 2017 WL 1165578 (E.D. Tex. Mar. 29, 2017).....	12
<i>In re Aoyama,</i>	
656 F.3d 1293 (Fed. Cir. 2011)	5
<i>Intelligent Automation Design, LLC v. Zimmer Biomet CMF & Thoracic, LLC,</i>	
799 F. App'x 847 (Fed. Cir. 2020)	5
<i>Inventio AG v. Thyssenkrupp Elevator Americas Corp.,</i>	
649 F.3d 1350 (Fed. Cir. 2011)	17
<i>Linear Tech. Corp. v. Impala Linear Corp.,</i>	
379 F.3d 1311 (Fed. Cir. 2004)	12, 18
<i>Massachusetts Inst. of Tech. & Elecs. For Imaging, Inc. v. Abacus Software,</i>	
462 F.3d 1344 (Fed. Cir. 2006)	19
<i>Maxell Ltd. v. Apple Inc.,</i>	
No. 5:19-CV-00036-RWS, 2020 WL 10456875 (E.D. Tex. Mar. 18, 2020).....	13
<i>Media Rights Techs. Inc. v. Capital One Fin. Corp.,</i>	
800 F.3d 1366 (Fed. Cir. 2015)	17
<i>Nautilus, Inc. v. Biosig Instruments, Inc.,</i>	
572 U.S. 898 (2014)	5
<i>One-E-Way, Inc. v. Int'l Trade Comm'n,</i>	
859 F.3d 1059 (Fed. Cir. 2017)	5
<i>Robert Bosch, LLC v. Snap-On Inc.,</i>	
769 F.3d 1094 (Fed. Cir. 2014)	17
<i>Skky, Inc. v. MindGeek, s.a.r.l.,</i>	
859 F.3d 1014 (Fed. Cir. 2017)	11, 23
<i>TecSec, Inc. v. Int'l Bus. Machs. Corp.,</i>	
731 F.3d 1336 (Fed. Cir. 2013)	11, 23
<i>Williamson v. Citrix Online, LLC,</i>	
792 F.3d 1339 (Fed. Cir. 2015)	11, 16, 17

Zeroclick, LLC v. Apple Inc.,
891 F.3d 1003 (Fed. Cir. 2018)11, 16

RUSS, AUGUST & KABAT

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Pursuant to Special Master Order No. SM-1 (Dkt. 37-1), Plaintiff TS-Optics Corporation (“TS-Optics”) hereby submits its Opening Claim Construction Brief. Asserted U.S. Patent No. 7,266,055 (the “’055 patent”) is attached as Exhibit 1, and asserted U.S. Patent No. 9,612,709 (the “’709 patent”) is attached as Exhibit 2.¹

I. INTRODUCTION

The Court should adopt TS-Optics’ proposed constructions because they are consistent with the intrinsic evidence and Microsoft’s own arguments prior to the claim construction process.

With respect to the ’055 patent, a single term, “unipolar magnets,” is at issue. Microsoft argues, now, that this term is indefinite. Prior to claim construction, Microsoft took the opposite position: “In the optical pickup actuator context, a unipolar magnet refers to using the magnet such that only one pole-either north or south (but not both)-faces and interacts with a particular coil.” Ex. 3 at 21-23 (Microsoft’s petition to the Patent Office; relying on the testimony of its expert, Dr. Mansuripur). TS-Optics agrees that, in the context of the ’055 patent, “unipolar magnets” has a plain and ordinary meaning similar to the one previously proposed by Microsoft. The Court should therefore construe “unipolar magnets” according to its plain and ordinary meaning.

With respect to the ’709 patent, Microsoft argues that all of the limitations are means plus function limitations despite the fact that no limitation uses the traditional “means” formulation. Microsoft’s argument is inconsistent with precedent and the plain meaning of the claim limitations to a POSITA. Each of the limitations cited by Microsoft has sufficiently definite structure. For example, despite being well-known terms that refer to specific structural concepts, Microsoft argues that “server” and “client” are meaningless nonce words. Microsoft’s argument is inconsistent with common knowledge, let alone the knowledge of a POSITA that likely uses such terms tens of times a day. Microsoft’s other arguments also ignore the plain meaning

¹ Exhibits are attached to the declaration of Benjamin T. Wang, filed concurrently.

1 of the terms as software components with any necessary algorithms described in the
2 claim limitations themselves. Pursuant to Federal Circuit and instructive authority,
3 none of the terms at issue here are means plus function terms, and the Court should
4 reject Microsoft's arguments.

5 **II. BRIEF BACKGROUND OF ASSERTED PATENTS**

6 **A. '055 Patent**

7 The '055 patent is titled "Optical Pickup Actuator and Optical Disk Drive
8 Using the Same and Method," and claims priority to a Korean patent application
9 filed on June 2, 2003. '055 patent at cover page. A disc drive contains, among other
10 things, a spindle motor (to spin an optical disc) and an optical pickup (which contains
11 an objective lens to focus light used to read the optical disc). *E.g., id.* at Fig. 3, 5:66-
12 6:18. An optical pickup includes an actuator to move the objective lens in various
13 directions (called the tracking, focusing, and tilting directions). *E.g., id.* at Fig. 1,
14 1:28-2:38. An optical pickup actuator works by using the Lorenz force, which is
15 created by the interaction between an electrical current running through a coil and a
16 magnetic field created by magnets. *E.g., id.* at 1:23-38; Ex. 5 at ¶¶ 43-47 (explaining
17 Lorenz force).

18 The specification explains that prior art optical pickup actuators used two
19 pairs of magnets, and that traditional placement "poses a limitation in that the optical
20 pickup actuator needs to be designed to avoid interference with a spindle motor ...
21 for rotating the disc." '055 patent at 2:66-3:9. Fig. 2 "is a top view of the [prior art]
22 optical pickup actuator." '055 patent at 1:37-38. Fig. 2 shows the use of a pair of
23 bipolar magnets (elements 21a and 21b, magnets with both north and south poles on
24 a single face) and a pair of unipolar magnets (elements 22a and 22b, magnets with a
25 single pole on a face). *See, e.g.,* Ex. 4 at ¶¶ 68-69 (Microsoft's expert, Dr.
26 Mansuripur, arguing that Fig. 2 shows both a "unipolar interaction" (elements 22a
27 and 22b) and a "bipolar interaction" (elements 21a and 21b)); Ex. 3 at 22-23
28 (Microsoft making same argument).

1 A “demand for super-slim disk drives” created a need for “further
2 miniaturization and lightweight structure, i.e., by reducing the number of parts of an
3 optical pickup actuator.” *Id.* at 3:9-13. One of the disclosed solutions to the problem
4 was to use a single pair of magnets, instead of two pairs of magnets, in a particular
5 orientation. *Id.* at 6:25-29, 6:34-37 (also disclosing that a single pair of magnets
6 reduced spindle motor interference). The specification further explains that the
7 claimed magnets “are unipolar and magnetized with an N pole” or a “S pole.” ’055
8 patent at 6:29-34.

9 **B. ’709 Patent**

10 The ’709 patent is titled “Mobile Terminal-Based Virtual Game Controller
11 And Remote Control System Using The Same,” and claims priority to a Korean
12 patent application filed on June 22, 2012. ’709 patent at cover page. The ’709 patent
13 is directed to mobile gaming on a touchscreen-enabled device like a phone or table
14 by using a virtual game controller. ’709 patent at Title, Abstract, 1:17-19. Fig. 2 “is
15 a conceptual diagram illustrating an example of the screen of a mobile terminal when
16 a virtual controller is implemented on the mobile terminal according to an
17 embodiment of the present invention.” *Id.* at 4:34-37. The invention, as claimed,
18 allows for a game to be running on a server while the player can play the game using
19 dynamic virtual controls on their mobile device. The invention of the ’709 patent
20 has important applications for cloud gaming, allowing a service such as Microsoft’s
21 Xbox Cloud Gaming to stream a game to a customer’s mobile phone in a way that
22 allows the customer to play their game anywhere without the need for bulky,
23 separate input devices like keyboards or controllers.

24 **III. AGREED TERM – “FACING EACH OTHER” (’055 PATENT)**

25 The parties have agreed that the term “facing each other,” used in claim 1 of
26 the ’055 patent, should be construed as “disposed opposite each other.” TS-Optics
27 therefore requests that the Court’s claim construction order reflect this agreed
28 construction.

IV. DISPUTED TERMS

A. Level Of Ordinary Skill In The Art

The proper level of ordinary skill in the art for the '055 patent is a bachelor's degree in mechanical or electrical engineering, and two to five years of industry experience in designing optical storage devices. A POSITA could substitute additional relevant education for experience. Ex. 5 at ¶¶ 22-26. Experience in designing other types of storage devices would not be relevant because the invention is related to optical disc storage devices. *Id.*

The proper level of ordinary skill in the art for the '709 patent is a bachelor's degree in computer science, computer engineering, or a similar education, and two years of software development experience. A POSITA could substitute additional relevant education for experience.

B. Unipolar Magnets ('055 Patent): Plain And Ordinary Meaning, Which Is "Magnets That Each Have A Face With A Single Pole"

Term	TS-Optics' Proposal	Microsoft's Proposal
Unipolar magnets '055 patent, asserted claim 40	Plain and ordinary meaning, which is "magnets that each have a face with a single pole"	Indefinite

The term "unipolar magnets," as used in the '055 patent, has the plain and ordinary meaning of "magnets that each have a face with a single pole." There should be no dispute here. Microsoft, citing the opinion of Dr. Mansuripur, told the Patent Office the same thing: "In the optical pickup actuator context, a unipolar magnet refers to using the magnet such that only one pole-either north or south (but not both)-faces and interacts with a particular coil." Ex. 3 at 21-23; *see also* Ex. 4 at ¶¶ 67-70 (Dr. Mansuripur's declaration further supporting Microsoft's argument to the Patent Office), 37-39 (Dr. Mansuripur declaring that he "interpreted [the claims] as they would have been understood by a POSITA at the time of the priority date of the '055 patent" and that he "rel[ied] on their ordinary and customary meaning" in light

1 of the intrinsic evidence). Because the parties previously agreed on the correct
2 construction, the Court should adopt TS-Optics' (and Microsoft's previous)
3 proposal.

4 Rather than adopt its previous proposal, for the purposes of claim construction
5 in this Court, Microsoft hired a different expert to give an opinion directly contrary
6 to Dr. Mansuripur's opinion, and now argues that the term "unipolar magnets" is
7 indefinite. It is Microsoft's burden to demonstrate that "unipolar magnets" is
8 indefinite. To do so, Microsoft must show that the "claims, read in light of the
9 specification delineating the patent, and the prosecution history, fail to inform, with
10 reasonable certainty, those skilled in the art about the scope of the invention."
11 *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014); *see also, e.g.*,
12 *One-E-Way, Inc. v. Int'l Trade Comm'n*, 859 F.3d 1059, 1062-63 (Fed. Cir. 2017).
13 The Federal Circuit does not "impose a lofty standard" for indefiniteness because
14 "the specification need only disclose enough to 'permit one of ordinary skill in the
15 art to ... perceive the bounds of the invention.'" *Intelligent Automation Design, LLC*
16 *v. Zimmer Biomet CMF & Thoracic, LLC*, 799 F. App'x 847, 852 (Fed. Cir. 2020)
17 (quoting *In re Aoyama*, 656 F.3d 1293, 1298 (Fed. Cir. 2011)).

18 Microsoft's claim construction arguments to the Patent Office should be a
19 dispositive party admission. Microsoft expressly told the Patent Office that, in the
20 context of the '055 patent and optical pickup actuators, the term "unipolar magnets"
21 has a meaning consistent with the construction proposed by TS-Optics. Ex. 3 at 21-
22 23; Ex. 4 at ¶¶ 67-70; *see also* Ex. 4 at ¶¶ 37-39 (Dr. Mansuripur rendered his
23 opinions based on the plain meaning of the claims, including "unipolar magnets," in
24 light of the intrinsic evidence).

25 Moreover, TS-Optics' proposed construction is consistent with the intrinsic
26 evidence. *See* Ex. 5 at ¶¶ 38-40, 49. In the claims, "a pair of unipolar magnets" are
27 used to interact with "a plurality of coils connected to an electric circuit" "to create
28 an electromagnet force to move the blade." A POSITA would understand the claim

1 is referring to using the well-known Lorenz force, which is “created as a result of an
2 interaction between a magnetic field (created by a magnet) and a charged particle
3 (created by current following in a coil).” Ex. 5 at ¶ 44. A magnetic field is “created
4 as a result of magnetic flux, which flows from a north pole to a south pole.” *Id.* at ¶
5 46. A POSITA would understand that the claimed “electromagnet force” would not
6 be created unless the claimed “unipolar magnets” included both a north and south
7 poles. *See id.* at ¶¶ 43-47. Thus, claim 40 of the ’055 patent requires that the
8 “unipolar magnets” are typical magnets, with a north and south pole. Consistent with
9 TS-Optics’ proposal and Microsoft’s and Dr. Mansuripur’s argument to the Patent
10 Office, the term “unipolar” refers to the orientation of those poles in the magnets.

11 The specification further confirms the plain meaning of the “unipolar
12 magnets” term. The specification explains that the claimed magnets “are disposed
13 opposite to each other in a Y direction” and “are unipolar and magnetized with” a
14 pole, referring to the faces of the magnets that are facing each other. ’055 patent at
15 6:29-34. The specification further confirms that the described arrangement of the
16 “unipolar magnets” decreases “a risk of interference with the spindle motor 51”
17 because of less interference from magnetic fields. *See id.* A POSITA would
18 understand that this specification description only makes sense if the “unipolar
19 magnets” are creating magnetic fields by having both a north and south pole. *See* Ex.
20 5 at ¶ 46. Figure 5 of the ’055 patent demonstrates magnets 180, both with a north
21 pole, consistent with the specification’s disclosure that a single pole should face, and
22 interact with, the coils. As Microsoft and its own expert explained during claim
23 construction with the Patent Office (prior to claim construction here), a POSITA
24 would understand, based on context such as the invention being an optical pickup
25 actuator, that Figure 5 shows a unipolar magnet with a single pole on the face facing
26 the coils. Ex. 4 at ¶¶ 68-69; Ex. 3 at 22-23. Dr. Mansuripur further explained that a
27 POSITA would understand that Figure 5 does not illustrate the south pole, like is
28 shown in Figure 2 of the ’055 patent, “because [the pole’s] illustration was not

relevant to the magnetic interaction” being described in Figure 5. Ex. 4 at ¶ 68 (Figure 2, “which also shows a unipolar interaction” in magnets 22a and 22b, “more clearly labels both the north and south poles of magnets (22a, b).”). A POSITA would, however, know it must be there. *See* Ex. 4 at ¶¶ 68-69; Ex. 3 at 22-23.

The file history does not alter the plain meaning of “unipolar magnets.” Notably, the examiner appears to have understood that the term should be accorded its plain and ordinary meaning. Exs. 6, 7 (allowing draft claim 42, which then became claim 40 in the ’055 patent, showing no apparent confusion as to meaning of “unipolar magnets”).

Accordingly, the Court should find that the term “unipolar magnets” is entitled to its plain and ordinary meaning of “magnets that each have a face with a single pole.”

C. Server And Client Terms (’709 Patent): Plain And Ordinary Meaning; Not Indefinite

Term	TS-Optics’ Proposal	Microsoft’s Proposal
Virtual controller server ’709 patent, asserted claims 1, 2, 4, 8	Plain and ordinary meaning	Means plus function <u>Function:</u> “configured to remotely communicate with a virtual controller client running on a remote mobile terminal” <u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.
Virtual controller client ’709 patent, asserted claims 1, 2, 3, 4	Plain and ordinary meaning	Means plus function <u>Function:</u> “configured to remotely communicate with a virtual controller server running on a computer

RUSS, AUGUST & KABAT

		for remote key input to an application running on the computer”
		<u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.

A POSITA would understand, in light of the intrinsic evidence, that the “virtual controller server” and “virtual controller client” terms refer to their plain and ordinary meaning of two software programs in a client/server architecture that provide a certain functionality (a virtual controller). Servers, clients, and server-client architecture are well-known structures in the art and, given the proliferation of networking technology in 2012 (when the Korean parent was filed), well-known structures to most people generally. In 2012, just like today, people use servers and clients on a daily basis to, for example, get email (an email client accesses an email server), access websites (a browser client accesses an HTML server), use remote file storage (*e.g.*, a Dropbox client accesses a Dropbox server), and play games (a game client accesses a game server). People, and especially a POSITA, would understand the structure imparted by the claimed server and client programs.

This invention is related to virtual video game controllers, particularly a “mobile terminal-based virtual controller capable of manipulating an application running on a computer.” ’709 patent at Title (“Mobile Terminal-Based Virtual Game Controller And Remote Control System Using The Same”), 1:16-57 (disclosing that the invention solved the problem of a need for proprietary controller or “clumsy,” “large” keyboard).

In the claims, the server and client are described in their well-known structural sense as software programs in a server-client relationship being executed by computer hardware. The “virtual controller server” is described as “running on a computer” (preamble of claims 1 and 11) and having a program stored in a computer-readable storage medium (claims 8 and 15). The “virtual controller client” is

1 similarly described as “running” on a computer (claims 4 and 15, and preamble of
2 claim 11) and having a program (claim 15). Moreover, Microsoft’s proposed recited
3 functions confirm that the server and client are being described as performing the
4 traditional and well-known server-client function of “remotely communicat[ing]”
5 with each other to allow the server to provide a functionality to the client (“remote
6 key input”).

7 The specification is similarly consistent that a “virtual controller server” and
8 “virtual controller client” refer to well-known software structures. Figure 1 is a
9 “conceptual diagram illustrating a virtual controller client implemented in a mobile
10 terminal and a virtual controller server implemented in a personal computer
11 according to an embodiment of the present invention.” ’709 patent at 4:30-33. The
12 “virtual controller server 10 is executed as a background task in the personal
13 computer 100” and “the virtual controller client 20 is executed as a foreground task
14 in the mobile terminal 200.” *Id.* at 4:63-67; *see also id.* at 9:54-56 (“a user can run
15 the virtual controller on a mobile terminal such as a smart phone”). The specification
16 further discloses that, in this embodiment, “the virtual controller server 10 may be
17 viewed as running in ... the subsystem layer 103.” *Id.* at 5:4-7. The “virtual
18 controller client” is similarly disclosed in the specification as “run[ning] on the
19 mobile OS platform 204.” *Id.* at 5:46-47. The references to the “virtual controller
20 server” and “virtual controller client” as typical server/client software running on
21 computers is consistent throughout the specification. *E.g., id.* at 9:3-9 (“it is assumed
22 that the virtual controller server 10 and the application 30 are run on the personal
23 computer 100, the virtual controller client 20 is run on the mobile terminal 200
24 having the touch screen 202 and the acceleration sensor 203, and the personal
25 computer 100 and the mobile terminal 200 are connected to each other via the
26 wired/wireless communication interfaces 101 and 201”), 6:16-22 (“First, a gamer
27 runs the virtual controller server 10 and the application 30 on the personal computer
28 100, then runs the virtual controller client 30 on the mobile terminal 100, and

1 manipulates the personal computer 100 and the mobile 200 to recognize each other
2 on a single wires/wireless network”), 5:38-45 (“The mobile terminal 200 may
3 include ... a mobile OS platform 204 on which the virtual controller client 2 runs.”);
4 *see also id.* at 1:58-64, 2:34-41, 3:1-2, 3:9-11, 3:38-44 (similarly referring to the
5 terms as software-based structures). A typical server and client interaction to create
6 the novel virtual controller is described in Figure 3 and at 9:3-47.

7 The file history is also consistent with the plain meaning of the “virtual
8 controller server” and “virtual controller client.” The claims, as originally filed, were
9 directed to a “virtual controller client based on a mobile terminal” and a “virtual
10 controller server operating on a computer.” Ex. 8 at 25, 27. The examiner objected
11 to the claim as indefinite because it was unclear if the claimed components were
12 “program code” or “structural elements” (like processor or hardware components).
13 Ex. 9 at 2-3. The inventors amended the claims to more clearly claim a computer
14 running software. Ex. 10 at 2-3, 8. The examiner accepted the inventors’ clarification
15 and withdrew the previous objection. Ex. 11 at 2.

16 The extrinsic evidence provided by Microsoft also demonstrates that the plain
17 meaning of server and client is structural. For example, the definition for “server”
18 cited by Microsoft is “a program designed to provide other programs with access to
19 a resource, service, etc., over a computer network,” and a “client” is a “program used
20 to access a service or data that is provided and managed by a server, esp. over a
21 computer network.” Ex. Ex. 12 at 10 (server); Ex. 13 at 6, Ex. 14 at 4 (client)²; *see*
22 *also* Ex. 15 at 102 (client is defined as “On a local area network or the Internet, a
23 computer that accesses shared network resources provided by another computer
24 (called a *server*)” (italics in original)), 474 (“On a local area network (LAN), a
25 computer running administrative software that controls access to the network and its
26 resources, such as printers and disk drives, and provides resources to computers

27
28 ² Exhibit 13 was produced by Microsoft but obscures the relevant definition. Exhibit
14 provides the same definition, without the obfuscation.

1 functioning as workstations on the network.”). Microsoft’s expert, Dr. Barrett,
2 admits that the server/client concept is well known to a POSITA, including being
3 taught to students as part of “industry standard coursework.” Ex. 16 at ¶ 72.³

4 Because the terms do not use “means” and there is no presumption that means
5 plus function applies, in order to prevail, it is Microsoft’s burden to “*demonstrate*[]
6 that the claim term fails to recite sufficiently definite structure or else recites function
7 without reciting sufficient structure for performing that function.” *Zeroclick, LLC v.*
8 *Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018) (quoting *Williamson v. Citrix*
9 *Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc)) (italics added by
10 Federal Circuit). Microsoft cannot meet this burden because a POSITA would
11 understand that these terms connote structure, as described above.

12 *Skky, Inc. v. MindGeek, s.a.r.l.* is instructive. *Skky* demonstrates that, even
13 where the presumption of means plus function applied, it can be overcome when the
14 term refers to well-known structure. In *Skky*, the term at issue was “wireless device
15 means.” 859 F.3d 1014, 1019 (Fed. Cir. 2017). The “wireless device” is “used in
16 common parlance ... to designate structure,” and the Federal Circuit therefore found
17 that the presumption of means plus function was overcome. *Id.* at 1019-20 (quoting
18 *TecSec, Inc. v. Int’l Bus. Machs. Corp.*, 731 F.3d 1336, 1347 (Fed. Cir. 2013)).
19 *TecSec*, which also addressed presumption triggering terms (“system memory
20 means” and “digital logic means”), is also relevant here. There, the Federal Circuit
21 held that a term can be structural “even if the term covers a broad class of structures
22 and even if the term identifies the structures by their function.” 731 F.3d at 1347
23 (internal quotation marks and citations omitted). The fact that a term like “system
24 memory” was broad did not mean it was not structural. *Id.* The Federal Circuit’s
25 reasoning applies even more strongly here, where there is no presumption. Like a

26
27 ³ Despite Dr. Barrett’s admission about the plain meaning of server and client, he
28 concludes that the terms are indefinite. Dr. Barrett’s conclusion is inconsistent with
the law, as demonstrated in this Brief. TS-Optics will address Microsoft’s arguments
in more detail, if necessary, in its Responsive Brief.

1 “wireless device,” “system memory” and “digital logic,” “server” and “client” refer
2 to well-known structure and means plus function should not apply to them.

3 Even if “virtual controller server” and “virtual controller client” alone are not
4 sufficient to sufficiently connote structure, the claims themselves can provide
5 enough context to make them structural. *E.g., Linear Tech. Corp. v. Impala Linear*
6 *Corp.*, 379 F.3d 1311, 1319-21 (Fed. Cir. 2004) (finding a claimed “circuit” to be
7 structural where the operational features of the circuit were described in the claim);
8 *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1295, 1301 (Fed. Cir. 2014) (finding a
9 claimed “heuristic” (a software algorithm) structural where the operational features
10 of the heuristic were described in the claim). Like *Linear*, *Apple*, and similar cases,
11 the “virtual controller server” and “virtual controller client” are not simply given a
12 broad function. Instead, the claims describe in detail how the server and client are
13 comprised of various software components *and* the operational algorithms of those
14 components. ’709 patent at claims 1, 4 (these limitations are discussed in more detail
15 below). Thus, even if the terms are not structural standing alone, the surrounding
16 limitations of the claims provide the necessary context to make the terms structural.

17 *Free Stream Media Corp. v. Alphonso Inc.* is also relevant, instructive
18 authority. There, the court addressed a claim for a “client device.” After noting that
19 the presumption did not apply, the court found that the term was structural because
20 the claims described “how the ‘client device’ operates within the claimed invention
21 to achieve its objectives,” citing to the various processing, associating, gathering,
22 and communicating limitations in the claims for the device. No. 2:15-CV-1725-
23 RWS, 2017 WL 1165578, at *24-25 (E.D. Tex. Mar. 29, 2017). The court also noted
24 that the description of the device as a “client” further confirmed the structural nature
25 of the claimed “client device.” *Id.* at *25 (citing definition of “‘client’ as ‘a computer
26 that receives services from another computer’”).

27 *Maxell Ltd. v. Apple Inc.* is similarly instructive. The term at issue there was
28 a “ringing sound generator.” No. 5:19-CV-00036-RWS, 2020 WL 10456875, at *13

RUSS, AUGUST & KABAT

(E.D. Tex. Mar. 18, 2020). The court found the term to be structure because the claims described the input and interactions of the claimed generator. *Id.* (citing limitations requiring the generator to have “a plurality of sound sources therein” and being controlled by a controller such that at least two sound sources are used). Thus, applying the same reasoning as in *Linear*, *Apple*, *Free Stream*, and *Maxell*, the context of the entire claim further confirms that “virtual controller server” and “virtual controller client” are structural terms.

Accordingly, the Court should find that Microsoft has not overcome the presumption that “virtual controller server” and “virtual controller client” are not means plus function.

D. Unit Terms ('709 Patent): Plain And Ordinary Meaning; Not Indefinite

Term	TS-Optics' Proposal	Microsoft's Proposal
Button setting adjusting unit '709 patent, asserted claim 1	Plain and ordinary meaning	Means plus function <u>Function:</u> “configured to receive first button setting information ... and to specify an arrangement and attributes of virtual buttons based on the received first button setting information ... [and] configured to receive second button setting information.” <u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.
Client message interfacing unit	Plain and ordinary meaning	Means plus function <u>Function:</u>

RUSS, AUGUST & KABAT

Term	TS-Optics' Proposal	Microsoft's Proposal
'709 patent, asserted claims 1, 2		<p>“configured to convert the touch input message into a virtual input message in a form recognized by the virtual controller server, and to output, to the virtual controller server, the converted touch input message as the virtual input message.”</p> <p>Additionally, the recited function may include “convert[ing] the touch input message or the movement input message into a virtual input message in a form recognized by the virtual controller server.”</p> <p><u>Structure:</u> No corresponding structure disclosed.</p>
<p>Button setting generating unit</p> <p>'709 patent, asserted claim 4</p>	<p>Plain and ordinary meaning</p>	<p>Means plus function</p> <p><u>Function:</u></p> <p>“configured to generate and transmit, to the virtual controller client, first button setting information including a mapping relationship between key inputs to the application and associated virtual input messages ...[and] is further configured to, in response to an occurrence of the event in the application, generate and transmit, to the virtual controller client, second</p>

RUSS, AUGUST & KABAT

Term	TS-Optics' Proposal	Microsoft's Proposal
		<p>button setting information including the dynamically changed virtual input message associated with the given key input.”</p> <p><u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.</p>
<p>Server message interfacing unit</p> <p>'709 patent, asserted claims 4, 5</p>	<p>Plain and ordinary meaning</p>	<p>Means plus function</p> <p><u>Function:</u> “configured to transmit a setting message including the first button setting information to the virtual controller client, and to receive a virtual input message from the virtual controller client, the virtual input message being generated based on a touch on the touch screen display device of the mobile terminal ... [and] operable to receive a virtual input message generated based on a movement of the mobile terminal.”</p> <p><u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.</p>
<p>Key mapping unit</p> <p>'709 patent, asserted claims 4, 6, 7</p>	<p>Plain and ordinary meaning</p>	<p>Means plus function</p> <p><u>Function:</u> “configured to identify a key input value mapped to</p>

RUSS, AUGUST & KABAT

Term	TS-Optics' Proposal	Microsoft's Proposal
		<p>the received virtual input message based on the first button setting information ... [and] further configured to identify the key input value mapped to the dynamically changed virtual input message based on the second button setting information.”</p> <p>Additionally, the recited function may include “transfer[ing] a key input value to the application via a message transfer architecture of an operating system that runs the application on the computer” and/or “transfer[ing] a key input value to the application via an input and output application programming interface (API) of an operating system that runs the application on the computer.”</p> <p><u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.</p>

Microsoft argues that these terms are subject to means plus function. Because the terms do not use “means,” Microsoft bears the burden to demonstrate that they are means plus function terms. *Zeroclick*, 891 F.3d at 1007; *Williamson*, 792 F.3d at 1348. Microsoft cannot show that the “unit” terms are means plus function terms because they disclose algorithms such that they are sufficiently structural.

1 It is inappropriate to “merely consider the introductory phrase (e.g.,
2 ‘mechanical control assembly’) in isolation” because the Court must “look to the
3 entire passage including functions performed by the introductory phase.” *Media*
4 *Rights Techs. Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015);
5 *see also Williamson*, 792 F.3d at 1351 (language other than the alleged means plus
6 function term “might inform the structural character of the limitation-in-question or
7 other impart structure”); *Inventio AG v. Thyssenkrupp Elevator Americas Corp.*, 649
8 F.3d 1350, 1359-60 (Fed. Cir. 2011) (the intrinsic evidence “indicate[d] that the
9 ‘computing unit’ connotes structure to skilled artisans” because it disclosed that the
10 computing unit was “a commercially available personal computer or workstation”
11 and noted that the term includes “at least one processor and at least one data
12 memory”). Thus, the Court must determine whether “the claim language, read in
13 light of the specification, recites sufficiently definite structure to avoid § 112, ¶ 6.”
14 *Media Rights*, 800 F.3d at 1372 (quoting *Robert Bosch, LLC v. Snap-On Inc.*, 769
15 F.3d 1094, 1099 (Fed. Cir. 2014)).

16 When software is the claimed structure, sufficiently definite structure is an
17 algorithm. *E.g., Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1364
18 (Fed. Cir. 2012) (“disclosure of an algorithm properly defines the scope of the claim
19 and prevents pure functional claiming”). An algorithm can be expressed as “as a
20 mathematical formula, in prose, or as a flow chart, or in any other manner that
21 provides sufficient structure.” *Id.* “[A]lgorithms in the specification need only
22 disclose adequate defining structure to render the bounds of the claim
23 understandable to one of ordinary skill in the art.” *AllVoice Computing PLC v.*
24 *Nuance Commc’ns, Inc.*, 504 F.3d 1236, 1245 (Fed. Cir. 2007).

25 Here, the “unit” terms are each expressed in terms of the specific algorithm
26 (i.e., structure) required to implement each claimed “unit.” All of the “unit” terms
27 have a similar structure. Using the “button setting generating unit” as a
28 representative example, the claimed unit is described as being for “button setting

1 generating.” A POSITA would understand that the “button setting generating unit”
2 is a software module running within the “virtual controller server” in a computer.
3 ’709 patent at claim 4[pre], 4[a], 4[b], 4[e], 4[f]; *see also supra* (discussing the
4 “server” and “client” terms, and how the claimed server and client are software).
5 Claim 4 itself then defines the “button setting generating” algorithm used by
6 software in the claimed computer:

- 7 (1) generating first button setting information;
- 8 (2) the first button setting information including a mapping relationship
- 9 between key inputs and virtual input messages;
- 10 (3) transmitting, to the virtual controller client, the first button setting
- 11 information;
- 12 (4) after an occurrence of an event in an application, generating a
- 13 second button setting information including a dynamically changed
- 14 virtual input message associated with a given key input; and
- 15 (5) transmitting, to the virtual controller client, the second button
- 16 setting information.

17 ’709 patent at claim 4[b], 4[e], 4[f]. The specification further confirms that the
18 claimed “button setting generating unit” is software running on a typical server
19 computer. *E.g.*, ’709 patent at 4:63-64 (an exemplary embodiment of the claimed
20 computer is a “personal computer 100”; a PC is well known to a POSITA), Fig. 1,
21 5:4-7 (a preferred embodiment of the “virtual controller server” is disclosed as
22 “running in ... the subsystem layer 103”).⁴ And the specification discloses a software
23 algorithm similar to the algorithm in claim 4. ’709 patent at 6:29-7:7.

24 The cases discussed *supra* are instructive here as well. *E.g.*, *Linear Tech.*, 379
25 F.3d at 1319-21 (finding a claimed “circuit” to be structural where the operational
26 features of the circuit were described in the claim); *Apple*, 757 F.3d at 1295 (finding

27
28 ⁴ Fig. 1 discloses three software layers (application layer 102, subsystem layer 103,
and kernel mode 104).

RUSS, AUGUST & KABAT

a claimed “heuristic” (a software algorithm) structural where the operational features of the heuristic were described in the claim). Other cases in the same line demonstrate that the “unit” terms are not means plus function. *E.g., Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1367-69 (Fed. Cir. 2022) (finding “code” and “application” not means plus function because of evidence the terms and “operation would have connoted structure to persons of ordinary skill”); *Massachusetts Inst. of Tech. & Elecs. For Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1356 (Fed. Cir. 2006) (claim language with input, output, and objective sufficient overcome application of means plus function); *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1373-75 (Fed. Cir. 2003) (“circuit” in combination with additional adjectival qualifications,” like “first interface,” “on-screen programming” or “analog video overlay image generating,” is sufficiently definite structure).

Like the “button setting generating unit,” the other “unit” terms also disclose their general purpose and algorithms within the claims themselves, as shown in the table below:

Term	Purpose And Algorithm Disclosed In Claim Language
Button setting adjusting unit '709 patent, asserted claim 1	<p>Purpose: button setting adjustment</p> <p>Algorithm:</p> <p>(1) receiving first button setting information;</p> <p>(2) the first button setting information including a mapping relationship between key inputs and associated virtual input messages;</p> <p>(3) specifying an arrangement and attributes of virtual buttons based on the received first button setting information;</p> <p>(4) receiving second button setting information; and</p> <p>(5) the second button setting information including a dynamically redefined mapping relationship where the virtual associated with a given key input has changed.</p> <p><i>See also</i> '709 patent at Fig. 1, 7:11-30, 6:61-7:2</p>
Client message interfacing unit	<p>Purpose: client message interfacing</p> <p>Algorithm:</p> <p><i>For claim 1:</i></p>

RUSS, AUGUST & KABAT

Term	Purpose And Algorithm Disclosed In Claim Language
<p>1 '709 patent, 2 asserted claims 1, 3 2</p>	<p>(1) converting the touch input message into a virtual input message in a form recognized by the virtual controller server; and</p> <p>(2) outputting, to the virtual controller server, the converted touch input message as the virtual input message.</p> <p><i>For claim 2:</i></p> <p>(1) converting the touch input message or movement input message into a virtual input message in a form recognized by the virtual controller server; and</p> <p>(2) outputting, to the virtual controller server, the converted as the virtual input message.</p> <p><i>See also '709 patent at Fig. 1, 8:14-19</i></p>
<p>10 Server message 11 interfacing unit</p> <p>12 '709 patent, 13 asserted claims 4, 14 5</p>	<p>Purpose: server message interfacing</p> <p>Algorithm:</p> <p>(1) transmitting a setting message including the first button setting information to the virtual controller client; and</p> <p>(2) receiving a virtual input message from the virtual controller client, where the virtual input message was generated based on a touch on the touch screen display device of the mobile terminal.</p> <p>In addition, for claim 5:</p> <p>(3) being operable to receive a virtual input message generated based on a movement of the mobile terminal.</p> <p><i>See also '709 patent at Fig. 1, 7:7-10, 8:20-23</i></p>
<p>20 Key mapping unit</p> <p>21 '709 patent, 22 asserted claims 4, 23 6, 7</p>	<p>Purpose: key mapping</p> <p>Algorithm:</p> <p>(1) identifying a key input value mapped to the received virtual input message based on the first button setting information; and</p> <p>(2) identifying the key input value mapped to the dynamically changed virtual input message based on the second button setting information.</p> <p>In addition, for claim 6:</p> <p>(3) transferring a key input value to the application via a message transfer architecture of an operating system that runs the application on the computer.</p>

Term	Purpose And Algorithm Disclosed In Claim Language
	<p>In addition, for claim 7: (3) transferring a key input value to the application via an input and output application programming interface (API) of an operating system that runs the application on the computer. <i>See also</i> '709 patent at 8:20-28</p>

Accordingly, for the same reasons as above “button setting generating unit,” the other “unit” terms are not means plus function terms.

The Court should therefore find that the “unit” maps are not means plus function, and are not indefinite.

E. Filter And Interface Terms ('709 Patent): Plain And Ordinary Meaning; Not Indefinite

Term	TS-Optics' Proposal	Microsoft's Proposal
<p>User virtual button interface</p> <p>'709 patent, asserted claims 1, 2</p>	<p>Plain and ordinary meaning</p>	<p>Means plus function</p> <p><u>Function:</u> “configured to generate a first virtual button screen based on the first button setting information ... and to display the first virtual button screen on a touch screen display device of the mobile terminal ... [and] in response to an occurrence of the event in the application, ... configured to generate and display, on the touch screen display device of the mobile terminal, a second virtual button screen based on the second button information.” Additionally, the recited</p>

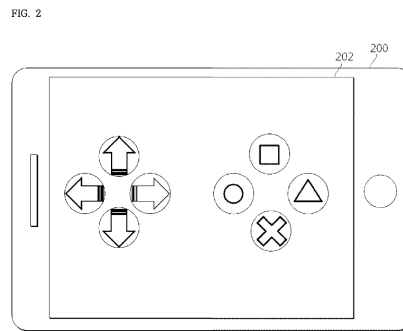
RUSS, AUGUST & KABAT

Term	TS-Optics' Proposal	Microsoft's Proposal
		<p>function may include "activat[ing] an acceleration sensor of the mobile terminal to enable a detection of movements of the mobile terminal."</p> <p><u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.</p>
<p>Touch event filter</p> <p>'709 patent, asserted claim 1</p>	<p>Plain and ordinary meaning</p>	<p>Means plus function</p> <p><u>Function:</u> "configured to generate touch input messages recognized as key input by the application, based on touch event objects that are generated from touch signals, of the touch regions corresponding to the virtual buttons, among touch signals input by the touch screen."</p> <p><u>Structure:</u> No corresponding structure disclosed. Therefore, the limitation is indefinite.</p>
<p>Acceleration data filter</p> <p>'709 patent, asserts claim 2</p>	<p>Plain and ordinary meaning</p>	<p>Means plus function</p> <p><u>Function:</u> "configured to generate a movement input message that is mapped to a key input of the application, based on acceleration data that is generated based on an acceleration signal</p>

Term	TS-Optics' Proposal	Microsoft's Proposal
		generated by the acceleration sensor.”
		Structure: No corresponding structure disclosed. Therefore, the limitation is indefinite.

The “interface” and “filter” terms refer to sufficiently definite structure, and Microsoft cannot meet its burden to demonstrate these terms are subject to means plus function. *See, e.g., Skky*, 859 F.3d at 1019-20; *TecSec*, 731 F.3d at 1347.

The “interface” term refers to a well-known structure, a user interface. And, in the context of the remainder of claim 1 of the ’709 patent, which refers to a “mobile terminal,” a “touch screen,” and “touch regions,” a POSITA (and most people today) would understand that the claimed user interface is referring to virtual buttons displayed on a touch-sensitive screen, like most mobile phones and tablets today. The specification further supports this understanding. For example, Figure 2 of the ’709 patent is a drawing of mobile device with virtual buttons on a touch screen:



See also ’709 patent at 8:48-64. The invention is consistently described in the specification, like the claims, as using a touch screen user interface. *Id.* at Fig. 1 (“touch screen 202”), 5:38-61, 6:45-57, 7:20-36, 7:52-8:3. A “user virtual button interface” therefore connotes sufficiently definite structure in and of itself.

Similarly, the “filter” terms connote sufficiently definite structure. Microsoft’s own dictionary citation defines “filer” as a “program or software

RUSS, AUGUST & KABAT

function that removes or hide certain [information], according to preset rules or conditions,” and further notes it is “[f]requently with distinguishing word[s]” such as “parental” or “spam.” Ex. 17 at 7. The “touch event filter” and “acceleration data filter” are used consistent with this known structure. Claim 1[c] requires that a “touch event filter” filter “touch signals input by the touch screen” looking for virtual key inputs. Similarly, claim 2[b] requires that all of the acceleration signals be filtered looking for relevant virtual key input data. The specification discloses similar functionality similar to the well-known structural meaning of “filter.” *E.g.*, ’709 patent at 7, 63-8:3, 8:10-13. The “filter” terms, therefore, are also sufficiently structure.

Even if the terms themselves are not sufficiently structural, like the “unit” terms, each of the terms is talking about a portion of a software programs whose algorithm is defined within the claim limitation itself, as shown in the table below:

Term	Purpose And Algorithm Disclosed In Claim Language
User virtual button interface '709 patent, asserted claims 1, 2	<p>Purpose: virtual button user interface</p> <p>Algorithm:</p> <p>(1) generating a first virtual button screen based on the first button setting information;</p> <p>(2) the generated interface include touch regions corresponding to visually displayed virtual buttons;</p> <p>(3) displaying the first virtual button screen on a touch screen display device of the mobile terminal;</p> <p>(4) generating a second virtual button screen based on the second button information; and</p> <p>(5) displaying, on the touch screen display device of the mobile terminal, the second virtual button screen.</p> <p>In addition, for claim 2:</p> <p>(6) activating an acceleration sensor of the mobile terminal to enable a detection of movements of the mobile terminal.</p> <p><i>See also</i> ’709 patent at Fig. 1, 7:31-36</p>
Touch event filter '709 patent, asserted claim 1	<p>Purpose: filtering touch events</p> <p>Algorithm:</p> <p>(1) receiving touch signals input by the touch screen; and</p>

Term	Purpose And Algorithm Disclosed In Claim Language
	(2) generating touch input messages recognized as key input by the application, based on touch event objects that are generated from touch signals, of the touch regions corresponding to the virtual buttons, among touch signals input by the touch screen <i>See also</i> '709 patent at Fig. 1, 7:63-8:3
Acceleration data filter '709 patent, asserts claim 2	Purpose: filtering acceleration data Algorithm: (1) receiving acceleration data that is generated based on an acceleration signal generated by the acceleration sensor; and (2) generating a movement input message that is mapped to a key input of the application, based on the acceleration data <i>See also</i> '709 patent at Fig. 1, 8:4-13

Accordingly, the “interface” and “filter” terms are not subject to means plus function.

V. CONCLUSION

For the reasons expressed above, the Court should adopt TS-Optics’ proposed construction for the “unipolar magnets” term, and should decline to construe the terms from the '709 patent.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on September 4, 2025, I electronically filed the foregoing document with the Clerk of the Court for the Central District of California using the ECF System which will send notification to the registered participants of the ECF System as listed on the Court’s Notice of Electronic Filing.

/s/ Benjamin T. Wang
Benjamin T. Wang